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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* PAUL D. ARLING  
and PATRICK H. HAYES

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Appeal 2008-2829  
Application 09/718,931  
Technology Center 2600

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Decided: October 27, 2008

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Before KENNETH W. HAIRSTON, ROBERT E. NAPPI,  
and THOMAS S. HAHN, *Administrative Patent Judges*.

HAHN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's rejection of claims 6-9, 11, and 15-19. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

## STATEMENT OF THE CASE

Appellants invented an improved remote control system and method for controlling operation of a media playing device – such as a television (TV). To this end the viewer inputs to a memory in the remote control both an original (i.e., primary) channel indicator and a time interval. The viewer then can start a timer in the remote control that determines when the input (i.e., predetermined) time interval ends. During the time interval the remote control can be used to change or scan to different channels. At the end of the predetermined time interval the remote control is programmed to send a signal to the media playing device to tune to the primary channel.<sup>1</sup> Claim 6 is illustrative:

6. A remote control adapted to provide a return to channel feature for a media device adapted to play media and not equipped with a return to channel feature, the remote control comprising:

a timer for timing a predetermined interval;

a wireless transmitter;

memory; and

programming stored in memory for performing steps comprising:

storing a primary channel indicator in memory in response to a first predetermined user action,

starting the timer in response to a second predetermined user action, and in response to expiration of the predetermined interval and without regard to a current state of any media being received by the media device, causing the wireless transmitter of the remote control to

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<sup>1</sup> See generally Spec. 3:10-15, 4:9-30, and 10:14-13:19.

transmit to the media device a command signal corresponding to the primary channel indicator to cause the media device to return to the primary channel;

wherein the command signal is selected from a library of command signals pre-established within the remote control as being appropriate for commanding various operations of the media device.

The Examiner relies on the following prior art references to show unpatentability:

Hesse	US 5,287,109	Feb. 15, 1994
Kuno <sup>2</sup>	JP 10145634 A	May 29, 1998

1. Claims 6, 8, and 15-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hesse.
2. Claims 7, 9, 11, and 19 stand rejected under 35 U.S.C. § 103(a) as unpatenatable over Hesse, and Kuno.

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<sup>2</sup> A computer prepared English translation of this publication was transmitted to the Board for this appeal. We have had a non-machine English translation prepared and have relied on that translation for what is disclosed in the reference. A copy of the non-machine translation is attached at the end of this decision. The non-machine translation identifies the inventor as Hirohito Hisano, whereas the computer translation identifies the inventor as Hirohito Kuno. For record consistency, we continue to refer to this reference as “Kuno.”

Rather than repeat the arguments of Appellants or of the Examiner, we refer to the Briefs and the Answer<sup>3</sup> for their respective details. In this decision, we have considered only those arguments actually made by Appellants. Arguments that Appellants could have made but did not make in their Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

*The Anticipation Rejection*

We consider the Examiner's anticipation rejection of claims 6, 8, and 15-18 over Hesse (Ans. 3-5) by way of representative claim 6.<sup>4</sup>

Appellants argue that Hesse only discloses a remote control having a real time clock to determine scheduled times, and, therefore, Hesse "not only fails to have a timer for timing a predetermined time interval but further fails to start any time measured operation in response to a user action with the remote control or a remote control that performs any operation upon an expiration of a predetermined time interval ..." (App. Br. 4-5). The Examiner reasons that the Hesse combined real time clock and memory to store times to implement user requested actions "performs the 'timing of an [predetermined] interval' as explicitly claimed" (Ans. 8).

Appellants further argue in opposition to the anticipation rejection that the Examiner admitted Hesse to be a deficient anticipation reference because it fails to disclose a manual button activated system to provide a

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<sup>3</sup> We refer to (1) the Appeal Brief filed March 27, 2006, (2) the Answer mailed June 19, 2006, and (3) the Reply Brief filed August 21, 2006 throughout this opinion.

<sup>4</sup> Appellants argue claims 6, 8, and 15-18 together as a group. *See* App. Br. 4-6: *see also* Reply Br. 2-5. Accordingly, we select claim 6 as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii).

“conventional return to channel” after a predetermined time (App. Br. 5-6). The Examiner denies such admission, and responds that the anticipation rejected claims “do not include the terms ‘conventional return to channel’, manual operation, nor any mention of ‘commercials’” (Ans. 9). Appellants make no response to the Examiner’s denial and explanation in the Reply Brief, and, therefore, waive further argument. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Appellants, however, assert in their Reply Brief without supporting citation to the record that “as acknowledged by the Examiner, Hesse simply fails to disclose, teach or suggest a remote control in which *a user action starts a timer of the remote control that times a predetermined time interval* and which is caused to transmit a command signal to return a media playing device to a primary channel *upon expiration of the predetermined time interval as timed by the user started timer*” (Reply Br. 5, emphasis in original). We do not find that the Examiner acknowledges such deficiency in Hesse. Instead, the Examiner finds Hesse teaches a remote control with “times stored in the memory [to] perform[] the ‘timing of an interval’ as explicitly claimed” (Ans. 8). The record rebuts Appellants’ contention of this Examiner acknowledgement. We, therefore, are not persuaded by Appellants’ contention.

#### *The Obviousness Rejection*

Appellants repeat their reliance on the Examiner’s finding that Hesse fails to disclose a manual mode remote control to provide a “conventional return to channel” after a predetermined time, or, alternatively, prior to the predetermined time expiring (App. Br. 6). Additionally, Appellants traverse the Examiner’s taking official notice that such subject matter would be

obvious to one skilled in the art at the relevant time from reading Hesse (App. Br. 6-7). According to Appellants, “no objective evidence has been provided to support [the Examiner’s] apparent conclusions that it would have been obvious to use the ‘manual’ mode of Hesse to modify the ‘auto’ mode of Hesse to arrive at all of the elements set forth in the claims.” (App. Br. 7)

In response, the Examiner maintains the rejection with introduction of the Kuno reference as extrinsic evidence <sup>5</sup> (Ans. 6).

## ISSUES

The anticipation rejection issue turns on (1) whether a Hesse determination of time using a real time clock would be construed by a skilled artisan as the recited “timer for timing a predetermined interval,” and (2) if so, whether the Hesse disclosed programmable remote control “auto” mode procedure teaches “transmit[ing] ... a command signal ... to cause the media device to return to the primary channel.”

The obviousness rejection issue before us is whether Appellants have shown that the Examiner erred in finding the claimed invention is unpatentable over the collective teachings of the Hesse remote control “real time clock” in view of the Kuno disclosure of a “remote control” communicating with a “specific device (TV timer 2)” to transmit commands to a TV.

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<sup>5</sup> “[T]he Board [or examiner] must point to some concrete evidence in the record in support of [traversed official notice] findings” to satisfy the substantial evidence test. *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001).

## FINDINGS OF FACT

The following Findings of Fact (FF) are relevant to the issues involved and are supported by a preponderance of the evidence on the record before us:

1. Hesse discloses “[a]n electronic remote control [that] ... has a processor with an input for entering command and time of command information ... , a real time clock, ... and an actuator for effecting ... a particular command when the time ... for that particular command matches the time on the real time clock” (Hesse, Abstract).
2. Making manual entries is disclosed by Hesse to program a remote control “with specific user requests ... to be [performed] automatically at different times” (Hesse, col.3, ll. 24-28) – such as “switch[ing] channels at different times of the day” (Hesse, col. 2, ll. 1-10).
3. The Hesse remote control includes a memory for storing entered “commands including time of command information” that are utilized to “only [transmit command signals] when the time of command information in the memory matches the time on the real time clock” (Hesse, col. 2, ll. 52-63).
4. Kuno discloses a device labeled “remote control” that sends commands to another device labeled “television timer” (also labeled a “specific device (TV timer 2)”), and both of these devices are taught as being separate from the Kuno television (Non-machine Kuno, ¶ 0008).



5. Kuno neither teaches nor suggests that the disclosed “remote control” and “television timer” must be maintained separate from each other.
6. The Kuno remote control (1) includes an input means to set time intervals, (2) sends a signal to memorize the currently viewed channel number, (3) starts a channel scanning routine, and (4) input means can “change the scanning time interval per channel and the total time interval.” (Non-machine Kuno, ¶ 0006)
7. “An input device such as a keyboard” is disclosed by Kuno for “adjust[ing] the scanning time interval per channel and the total scanning time interval easily.” (Kuno, ¶ 0015).

## PINCIPLES OF LAW

### *Anticipation*

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). The inquiry as to whether a reference anticipates a claim must focus on what subject matter is encompassed by the claim and what subject matter is described by the reference. As set forth by the court in *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 772 (Fed. Cir. 1983), it is only necessary for the claims to "'read on' something disclosed in the reference, i.e., all limitations of the claim are found in the reference, or 'fully met' by it."

### *Obviousness*

Obviousness is a question of law premised from underlying factual determinations. Therefore, to support a legal conclusion of obviousness in rejecting claims under 35 U.S.C. §103, the Examiner is required to establish factual bases. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). The required factual determinations are set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). This continues to be the required analysis under § 103 *KSR Int'l v. Teleflex, Inc.*, 127 S. Ct. 1727, 1734 (2007).

The scope and content of prior art relevant to an obviousness determination includes not only art that is the same as the art of the invention, but also those arts logically related to the inventor's concern. *In re GPAC, Inc.*, 57 F.3d 1573, 1577-79 (Fed. Cir. 1995). Addressing what is acceptable combinations of elements from prior art, the U.S. Supreme Court explains:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [v. *AG Pro, Inc.*, 425 U.S. 273 (1976)] and *Anderson-Black Rock* [v. *Pavement Salvage Co.*, 396 U.S. 57 (1969)] are illustrative – a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

*KSR*, 127 S. Ct. at 1740.

The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.*

## ANALYSIS

### *Anticipation*

The Examiner finds, and we agree, that the Hesse disclosed remote control for operating a TV “includes a real time clock ... which is used with ... programmed time information ... to implement a user programmed action” at a time desired (Ans. 3) (FF 1). As the Examiner indicates, Hesse teaches having a user inputting “requests” (i.e, commands) to a memory to be implemented by the remote control at particular times – for example, to change channels (Ans. 4) (FF 2). Hesse further teaches, as the Examiner finds, combining a real time clock with memory stored times for determining when the time of command information in the memory matches the time on the Hesse real time clock – i.e., a “timing of an interval” prior to implementing a user programmed remote control action (Ans. 8) (FF 3).

Appellants argue that: “[T]he remote control of Hesse only keeps track of *user established*, [sic] *singular points in exact time* at which some user designated action is to be automatically performed in the future ...” (Reply Br. 4, emphasis in original). We are not persuaded by Appellants’ argument because a timer has to measure time in order to denote expiration of a predetermined interval, and a clock *also* has to measure time in order to determine “*singular points in exact time*.” A “predetermined [time] interval” is commonly understood as a separation in “singular points in exact time.”

We conclude based on the record that Appellants' argued differences here are matters of description not function. Therefore, we conclude that the recited "timer for timing a predetermined interval" reads on the Hesse taught remote control with a real time clock and memory (FFs 1-3).

The Examiner finds with respect to Hesse and construction of the claim 6 recited "transmit ... a command signal ... to cause [a] media device to return to [a] primary channel," that a user can program the Hesse taught remote control to both tune a combined TV with video recorder (TV/VCR) to a channel (e.g., channel 6) for "recording ... and then go back to channel 5 for recording or display" (Ans. 4). In response, Appellants argue that Hesse describes "[t]he starting and stopping of the recording of the designated channels ... [to] take place without any user action with the remote control and only when the real time clock of the Hesse remote control matches the exact real times of the recording instructions ..." (Reply Br. 3, emphasis in original). Appellants repeat their argument about the Hesse real time clock, but do not refute the Examiner's finding that Hesse teaches a remote control for transmitting a signal to return to a channel. We are not persuaded by Appellants' argument, and based on the Examiner's findings we conclude that the recited "transmit ... a command signal ... to cause [a] media device to return to [a] primary channel" reads on the Hesse taught remote control.

Under 35 U.S.C. § 102, the prior art must teach each and every element set forth in the claim (*Verdegaal Bros., supra*). We agree with the Examiner that Hesse teaches all the elements of representative claim 6. Specifically, we are persuaded that reasonable interpretations of elements recited in Appellants' claim 6 are broad enough to read on the Hesse

programmable remote control (FFs 1-3). Thus, we agree with the Examiner that Hesse anticipates representative claim 6. We accordingly also will sustain the anticipation rejection over Hesse of the other claims 8, and 15-18.

*Obviousness*

The Examiner finds Kuno discloses two devices that are separate from a conventional TV. These two devices are a conventional TV remote control device having a scan switch and also a timer device (Ans. 6-7). The Examiner further finds that the Kuno timer device, i.e., “television (TV timer 2),” includes a memory to store a “primary (current) channel” (*Id.*). Additionally, the Examiner finds that Kuno discloses that after “a prescribed/predetermined time is exceeded a remote control signal... is sent to instruct channel restoration (return to primary channel)” (*Id.*). From these findings the Examiner concludes that it would have been obvious to a skilled artisan “to modify Hesse ... [to] allow[] the viewer to scan other channels and skip commercials on a currently viewed channel by depressing a button, which would then return the viewer to the original (commercial free) channel as done by Kuno” (Ans. 7).

Appellants argue Kuno is deficient because instead of a unitary remote control device, Kuno discloses a combination of a “dedicated remote control ... issu[ing] a ... command to a specific device (TV timer 2) ... [that] transmit[s] a command to a television to return the television to the channel number upon expiration of the scanning time” (Reply Br. 6). Based on the Kuno disclosed device combination to transmit commands to a TV, Appellants argue that “when Kuno is considered in its entirety ... one of skill in the art would ... be directed to modify ... the remote control of

Hesse to transmit a specific channel scanning command to a specific, external device, such as a TV timer,” which is not “the invention claimed” (*Id.*). We are not persuaded by Appellants’ argument because the Kuno combination of labeled remote control device and the timer device are disclosed as being separate from the controlled TV <sup>6</sup> (FF 4). We further are not persuaded by Appellants’ argument because the rejected claims do not include any limitation prohibiting a Kuno combination of a “remote control” and an “external device, such as a TV timer.” Kuno neither teaches nor suggests that these two devices must be maintained separate from each other (FF 5). A skilled artisan, we conclude would recognize that the Kuno devices could be combined or maintained as separate devices without altering their taught functions.

*Claims 7 and 19*

Dependent claim 7 adds the limitation to independent claim 6 of program “instructions for causing the wireless transmitter of the remote control to transmit the command signal corresponding to the primary channel indicator to the media device in response to the user repeating the second predetermined action prior to the predetermined interval expiring.” Substantively similar dependent claim 19 adds the limitation to independent method claim 15 of “respond[ing] to a repeated user first input prior to the expiration of the predetermined interval ... [by] causing the wireless

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<sup>6</sup> This Kuno combination structure separate from a television is not excluded by incorporation from the base independent claims into the dependent claims of the limitation “a media device adapted to play media and not equipped with a return to channel feature.”

transmitter of the remote control to transmit the command signal corresponding to the primary channel stored in memory.”

We find that Appellants in addressing these two claims merely have reiterated the same arguments made in connection with Hesse teaching a real time clock as opposed to a timer, and Kuno teaching a remote control communicating with a timer device that sends commands to a TV (Reply Br. 5-7). Appellants do not particularly point out errors in the Examiner’s reasoning to persuasively rebut the prima facie case of obviousness. We are persuaded by the Examiner’s reasoning. For example, we find that Kuno teaches and suggests varying the time for sending a command signal by disclosing that “[a]n input device such as a keyboard may adjust the scanning time interval per channel and the total scanning time interval easily” (Kuno ¶ 0015) (FF 7). Thus, we are not persuaded the Examiner erred and will sustain the rejection of claims 7 and 19.

#### *Claims 9 and 11*

Dependent claim 9 adds the limitation to independent claim 6 of having “the first predetermined user action for storing the primary channel in memory is the second predetermined user action, whereby the primary channel is stored in memory and the timer is started in response to the same predetermined user action.” Dependent claim 11 adds the further limitation to dependent claim 9 of having “the first predetermined user action comprise[] selecting a single key of the remote control.”

We find no error in the Examiner’s position that Kuno teaches “selection of a button (whether once, twice etc...) ... to store the current channel and start a timer so the user can scan other channels and at the end

of a period of time automatically return the user to the original (program viewed before scanning) channel” (Ans. 7) (FF 6 and 7). Appellants again do not particularly point out errors in the Examiner’s reasoning to rebut the prima facie case of obviousness, but merely reiterate the same arguments made in connection with Hesse and Kuno. Thus, we are not persuaded the Examiner erred and will sustain the rejection of claims 9 and 11.

### CONCLUSIONS OF LAW

Appellants have not shown that the Examiner erred in finding that the Hesse teachings anticipate representative claim 6 under § 102, or the other anticipation rejected claims 8, and 15-18. Also, Appellants have not shown that the Examiner erred in rejecting claims 7, 9, 11, and 19 under § 103 based on the collective teachings of the cited prior art.

### DECISION

We have sustained the Examiner’s rejections with respect to all claims on appeal. Therefore, the Examiner’s decision rejecting claims 6-9, 11, and 15-19 is affirmed.



Appeal 2008-2829  
Application 09/718,931

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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CC=JP DATE=19980529 KIND=A  
PN=10145634

REMOTE CONTROL DEVICE  
[RIMO-TO KONTORO-RU DEBAISU]

Hirohito Hisano

UNITED STATES PATENT AND TRADEMARK OFFICE  
Washington, D.C. September 2008

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[Claims]

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[Claim 1] In a remote control device, which scans television broadcasting channels started with a signal from a remote control terminal, the remote control terminal comprises:

a scan command means which commands the start of scanning television channels,

a signal transmission means which sends a signal to start scanning commanded by the scan command means, and  
the remote control device comprises:

a signal reception means which receives a signal from the remote control terminal,

a channel memory means which stores a channel number,

a scan memory means which stores data of scanning time interval per channel and total scanning time interval,

a channel switching request means which sends the command to switch channels to a television set,

a clock means which measures the scanning time interval per channel and the total scanning time interval,

where,

when the remote control device receives a start scanning signal from the remote control terminal, the device stores the currently viewed channel number in the channel memory means, sends the command to switch channels in a pre-determined sequence at the scanning time interval per channel which is stored in the channel switching means, and commands the switch

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\* Claim and paragraph numbers correspond to those in the foreign text.

back to the channel number which is stored in the channel memory means once the scanning time exceeds the total scanning time interval stored in the scan memory means.

[Claim **2**] The remote control device according to Claim **1**, wherein it has an input means which sets at least one of the scanning time interval per channel and the total scanning time interval.

[Detailed Explanation of the Invention]

[0001] [Industrial Field of the Invention]

The present invention relates to a remote control device which scans television channels.

[0002] [Related Art]

In the prior art, some remote control devices for selecting television channels of broadcasting stations also have a channel scanning function. This function automatically scans television channels at a pre-determined time interval per channel once a viewer presses a scan start button. A similar remote control device used for a paid television program at a hotel and a hospital is known as a television timer with a remote control function. This type of remote control device continues scanning channels until the viewer presses a scan stop button. When the button is pressed, a channel at the termination of the scanning mode is selected.

[0003] [Problems that the Invention is to Solve]

A remote control device of the prior art has the following problems. When a viewer wishes to scan television channels while a originally selected channel is broadcasting a commercial, the remote control device of the prior art requires the viewer to press the scan stop button while

scanning channels in order to return to the original channel. Therefore, if the total scanning time interval accidentally becomes longer, the commercial period is over and the viewer would miss the beginning of the resumed program.

[0004] Also, if the viewer does not remember the originally selected channel, he/she would be unable to return to the channel after the commercial period is over and actually view the resumed program. The challenge of the present invention is to implement a function of returning to the originally selected channel after a pre-determined scanning time.

[0005] [Means for Solving the Problems]

In a remote control device of the present invention, which scans television broadcasting channels starting with a signal from a remote control terminal, the remote control terminal is configured with a scan command means which commands the start of scanning television channels, a signal transmission means which sends a signal to start scanning commanded by the command of the scan command means, the remote control device is configured with a signal reception means which receives a signal from the remote control terminal, a channel memory means which stores a channel number, a scan memory means which stores data of the scanning time interval per channel and the total scanning time interval, a channel switching request means which sends a signal to switch channels to a television set, a clock means which measures the scanning time interval per channel and the total scanning time interval, and, when the remote control device receives a start scanning signal from the remote control terminal, the device stores the currently viewed channel number in the

channel memory means, sends a command to switch channels in a pre-determined sequence at the scanning time interval per channel which is stored in the channel switching means, and commands the switch back to the channel number which is stored in the channel memory means once the scanning time exceeds the total scanning time interval stored in the scan memory means.

[0006] The remote control device of the present invention also has an input means which sets at least one of the scanning time interval per channel and the total scanning time interval. With this function, the remote control device sends a signal to memorize the currently viewed channel number, starts the successive channel scanning routine at a pre-determined total scanning time interval, and then returns to the channel after a pre-determined total time interval, and the television set starts scanning channels automatically for the pre-determined total time and then returns to the original channel prior to the channel scan routine. The setting means [translator's note: "input" means] may change the scanning time interval per channel and the total time interval.

[0007] [Embodiment of the Invention]

Figure **1** depicts a schematic diagram of an embodiment of the present invention. This remote control device is configured with a remote terminal **1**, a television timer **2**, and a television receiver **3**. The remote terminal **1** has a scan switch **10** which starts the channel scanning routine, a remote controller light emission unit **11** which sends a remote control input signal **4** to the television timer **2**.

[0008] The television timer **2** is configured with a CPU **20**, a light receiving unit **21** which receives the remote control input signal **4**, a memory unit **22** which stores data of the channel number prior to starting the channel scanning routine, the scanning time interval per channel, and the total scanning time interval from start to finish of a scanning routine, and a light emitting unit **23** which sends a remote control output signal **5** to the television receiver **3**. The CPU **20** has a built-in timer (not shown in the figure) as a clock.

[0009] The television receiver **3** has a control signal receiving device (not shown) which receives the remote control output signal **5** from the television timer **2**. The remote control input signal **4** and the remote control output signal **5** may use infrared and other optical telecommunication carriers. Figure **2** shows a flow chart of the main operation of the present invention. Referring to Figure **1**, the operation of the present invention is disclosed hereafter.

[0010] The remote control terminal **1** waits for the scan switch **10** to be pressed (Step S1, Branch N), and once the scan switch is pressed (Branch Y), it sends the remote control input signal **4** to the television timer **2** (Step S2) to command the start of scanning channels. If the light receiving unit **21** of the television timer **2** receives the input signal (Step S3, Branch Y), and the CPU **20** confirms that the scan switch has been pressed (Step S4, Branch Y), the currently viewed channel number is stored in the memory unit **22** (Step S5).



[0011] The CPU **20** resets a one minute timer to count the total scanning time interval (one minute in this case) for returning to the original channel, and starts the timer (Step S6), switching the operation mode to the scan mode (Step S7). In addition, the CPU resets a five second timer for automatic channel scanning (5 seconds in this case) (Step S8), and then, sends a successive channel scanning signal as the remote control output signal **5** from the light emitting unit **23** to the television receiver **3** (Step S9), returning to the Step S3. Once the television receiver **3** receives the remote control output signal **5**, channels are switched successively according to a pre-determined order.

[0012] If Step S4 does not confirm that the scan switch is pressed (Branch N), the scan mode is aborted (Step S15) and another mode is processed (Step S16). The light receiving unit **21** does not detect an input signal (Step S3, Branch N), the 5 second timer is reset (Step S8) and the channel scanning signal is sent (Step S9) at 5 second intervals (Step S11, Branch Y) while in the channel scanning mode (Step S10, Branch Y).

[0013] Within the 5 seconds of scanning time per channel, i.e., while staying at a channel (Step S11, Branch N), if the total scanning time interval elapsed is not 1 minute (Step S12, Branch N), the operation returns to Step S3, and if it is (Step S12, Branch Y), a returning signal which is stored in the memory unit **22** is sent (Step S13) to the television receiver for returning to the original channel, and the scanning mode is terminated (Step S14).

[0014] As described above, pressing the scan switch **10** starts scanning channels successively at 5 second intervals, and returns to the original

channel after 1 minute even if a viewer does not operate the remote control device. The scanning time interval per channel and the total scanning time interval may be adjusted by storing their data in the memory unit **22** of the television timer **2** through an input device such as a keyboard.

[0015] [Effect of the Invention]

Because the present invention stores the channel number prior to scanning channels, and sends a returning signal after a pre-determined time interval while scanning channels, the original channel may be switched back after the automatic channel scanning routine. Therefore, for example, by pressing a scan switch once at the beginning of an advertisement period of a currently viewed channel, a user of the present invention may scan other channels and return to the original channel near the end of the advertisement period. An input device such as a keyboard may adjust the scanning time interval per channel and the total scanning time interval easily.

[0016] As disclosed above, the remote control device of the present invention allows a viewer and a handicapped viewer in particular to scan broadcasting station channels of a television set easily.

[Brief explanation of the Figures]

[Figure **1**] Schematic diagram of an embodiment of the present invention

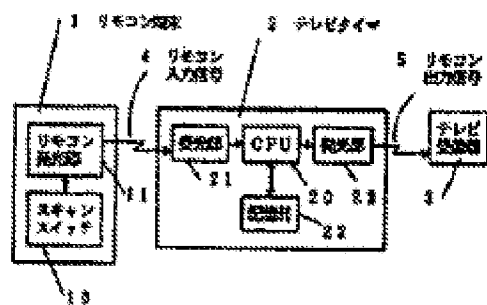
[Figure **2**] Flow chart of the operation of the present invention

[Explanation of the Reference Numerals]

**1** ... Remote control terminal, **2** ... Television timer, **3** ... Television set, **4** ... Remote control input signal, **5** ... Remote control output signal, **10** ... Scan switch, **11** ... Remote control light emitting unit, **20** ... CPU, **21**

... Light receiving unit, 22 ... Memory unit, 23 ... Light emitting unit.

[Figure 1]



- 1 Remote control terminal,
- 2 Television timer,
- 3 Television set,
- 4 Remote control input signal,
- 5 Remote control output signal,
- 10 Scan switch,
- 11 Remote control light emitting unit,
- 20 CPU,
- 21 Light receiving unit,
- 22 Memory unit,
- 23 Light emitting unit

[Figure 2]

